

Date: Monday, 11/21/2005 12:36:38 PM  
 User: Linda Lacelle

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : 02.750 SUPPORT  
 Job Number : 24852  
 Estimate Number : 10829  
 P.O. Number : N/A Part Number : D28931  
 This Issue : 11/21/2005 S.O. No. : N/A Drawing Number : D2893 REV A1  
 Prsht Rev. : NC Project Number : N/A  
 First Issue : N/A Type : MACHINED PARTS Drawing Revision : A1  
 Previous Run : N/A Material : N/A  
 Due Date : 12/21/2005 Qty: 10 Um: Each  
 Written By : SEE COMMENT BELOW  
 Checked & Approved By : SEE ABOVE USER  
 Comment : Est: C 02.11.26 Reformat; Added P/O KJ

## Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 PG PURCHASING



Comment: PURCHASING 2008938 2511129  
 Issue P/O: \_\_\_\_\_  
 Description: D6104-005  
 Material: 17-4 PH SS (AMS 5643 OR AISI 630) as per Dwg D6104  
 Material release note required.

B/N 24852

2.0 D28931 Support



Comment: Qty.: 1.0000 Each(s)/Unit Total : 10.0000 Each(s)  
 Support

3.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1  
 Receive & Inspect for Transit Damage  
 Ensure Material Release Note is attached

C205112108

10

4.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE

PG



Issue P.O. to turn only per dwg



378 u

Comment: MORI SEIKI CNC LATHE LARGE  
 Turn blank for Haas as per Folio FA081

Receive & Inspect

C206101130

12

5.0 QCB INSPECT ALL DIM TO DIM SHEET




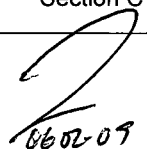
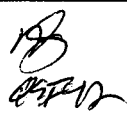
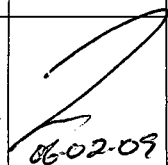
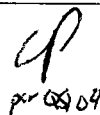
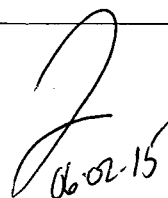
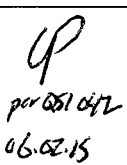

Comment: INSPECT ALL DIM TO DIM SHEET

QCB

206-01-30

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D2893-1 PAR #: N/A Fault Category: Red/Machined Part NCR: Yes ☐ No ☒ DQA: ☒ Date: 06/02/24  
 QA: N/C Closed: ☒ Date: 06.02.24

NCR: <u>24852</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
06/02/08	-6	1st Part SCRAP did not change Parameters of machine	 per 06/02/08	changed the Parameters/Scrap and destroy	S.G. 06/02/08	 06-02-09	 per 06/02/08	 06-02-09
06/02/13	6/4	2 supports have Dimension 0.065" <del>square</del> tolerance (0.053") they were machined at Metec.	 per 06/02/15	Part is OK	CL 06/02/13	 06-02-15	 per 06/02/15	 06-02-15

NOTE: Date & initial all entries

Date: Monday, 11/21/2005 12:36:38 PM  
User: Linda Lacelle

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 02.750 SUPPORT

Job Number: 24852

Part Number: D28931

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

~~BAND SAW~~ *Haas*

~~BAND SAW~~



Comment: ~~BAND SAW~~ *Haas*  
Machine as per Folio FA081  
Tumble & Deburr

*ml / S.G.*

*06/02/07*

*22*

*PTO*

7.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

*ml /*

*06/02/10*

*22*

8.0

QC8

SECOND CHECK



Comment: SECOND CHECK

*SG*

*06-02-16*

*22*

9.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1  
Acid etch and Alodine as per QSI 005 4.1

*✓*

*N/A*

*P50*

10.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

*a.m 06-02-23*

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT

*ml*

*06 02 23*

12.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: *5166*

*P.O*

*6/2/23*

*22*

13.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Inspection Level 21

*DD 06/02/24*

Job Completion



*U 06-02-23*

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
06-02-22	9	Parts don't get Abolished. SS. supports. permanent change	EE	02.06.22	1	EE 06.02.22 Per QSI 042	[Signature] 06.02.22	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

□□□□□□□□

# Job Costing Report

Dart Aerospace Ltd.  
Hawkesbury

Nov 17, 2005  
03:30 pm

Work Order No	: 0024852	Department Code:	
Project Name	: D2893-1	Burden Flags	: NNNNNNNN
Project For	: WK551	WO Status	: Open
Work Order Type	: Main	Invoice State	: Not Invoiced
Main WO Number	:	Invoice Date	:
House Part Number	: D2893-1	Invoice Number	:
Description	: Support	Invoice Amount	: 0.00
Manufactured	: Yes	Order Entry No	:
Amount Req'd	: 10	OE Value	: 0.00
Amount Done	: 0	Est Margin	: 0.000%
Start Date	: 11-17-05	Actual Margin	: 0.000%
Est Finish Date	: 12-21-05		
Act Finish Date	:		
Drawings Req'd	: No		
Ok for Approval	:		
Approval Rec'd	:	\$0 Posted to Finished Goods	

	Estimated	Actual	Var. %	Posted	To Post
Material Cost	: 0.00	0.00	0.00	0.00	0.00
Engineering Hours	: 0.00	0.00	0.00		
Engineering Cost	: 0.00	0.00	0.00	0.00	0.00
Production Hours	: 0.00	0.00	0.00		
Production Cost	: 0.00	0.00	0.00	0.00	0.00
Packaging Hours	: 0.00	0.00	0.00		
Packaging Cost	: 0.00	0.00	0.00	0.00	0.00
OverHead Hours	: 0.00	0.00	0.00		
OverHead Cost	: 0.00	0.00	0.00	0.00	0.00
CNC Hours	: 0.00	0.00	0.00		
CNC	: 0.00	0.00	0.00	0.00	0.00
Misc. Hours	: 0.00	0.00	0.00		
Misc.	: 0.00	0.00	0.00	0.00	0.00
Burden	: 0.00	0.00	0.00		
Total Cost	: 0.00	0.00	0.00		
Margin	: 0.000	0.000			
Selling Cost	: 0.00	0.00			

	Estimated	Actual
Labour Hrs/Amount Done	: 0.00	0.00
Profits/(Loss)	: 0.00	0.00



# Certificate of Test



\*\*\*\*\*  
\* CERTIFICATION \*  
\*\*\*\*\*

HEAT 64305 ORDER 0470451/001 SON 63205/1 BOL 0134430 TAG 1742289 11/18/05

SHIP TO:  
COPPER & BRASS SALES  
6555 EAST DAVISON

DETROIT MI 48212

----- YOUR ORDER & DATE -----  
CC8199 11/18/05 CUST# COPBRA01 CUST TAG#408860-5

----- ITEM DESCRIPTION -----  
GRADE 17-4  
Size 17-4 HRART RND BAR 4 STD Country of Melt: BRI  
Ship Condition A Country of Mfg.: BRI  
NAFTA Country of Origin is Country of Melt

Total Bundles 1 SON Weight 2700

----- SPECIFICATIONS -----  
AMS 2303E AMS 5643Q  
ASME SA564 E01 ASTM A484 03A  
DIN 50049/EN 10204 3.1B AISI 630, UNS S17400  
COPPER & BRASS 17-4 PH MAXX MAXX STAINLESS STEEL BAR  
ASTM A564 04 TYPE 630 NO WELD REPAIR  
FREE OF MERCURY CONTAMINATION

----- MECHANICAL & OTHER TESTS -----  
Test Condition A  
Hardness as shipped (311 HBW ) Hardness as tested (444 HBW )  
Hardness as shipped 31 HRC Hardness as tested 47 HRC  
Grain size 8.0 Tensile strength, KSI (MPa) 208.7 (1439)  
Micro OK 0.2% Yield Strength, KSI (MPa) 181.9 (1254)  
Intergranular corrosion OK  
Macro OK  
Elongation % in 4D 19.0  
Reduction of area % 47.5  
Ferrite 10.5  
Hardenability HRC 47

----- CHEMICAL COMPOSITION -----  
Carbon (C) .044 Manganese (Mn) .840  
Phosphorus (P) .020 Sulphur (S) .001  
Silicon (Si) .350 Chromium (Cr) 15.830  
Nickel (Ni) 4.270 Copper (Cu) 3.370  
Moly (Mo) .110 Nitrogen (N) .044  
Columbium (Cb) .290 Aluminum (Al) .027  
Tin (Sn) .006  
Columbium/ Tantalum (Cb+Ta) .290  
Iron (Fe) Balance  
Frequency .000 Severity .000  
Melt Practice EAF  
Refining Practice AOD  
De-long Ferrite .0

Knowingly & willfully falsifying or concealing a material act on this form, or making false, fictitious or fraudulent statements or representations herein could constitute a felony punishable under federal statutes.

We hereby certify that the test results shown in this report are correct and accurate as contained in the records of the company and are in compliance with the specifications, codes, and standards listed above.

M.F. Marcanio, Quality Manager

*M.F. Marcanio*

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 24852
<b>Description:</b> Ø2.750 Support		<b>Part Number:</b> D2893-1
<b>Inspection Dwg:</b> D2893 Rev. A1		<b>Page 1 of 1</b>

Inspect dimensions highlighted on inspection sheet drawing D2893 Rev A1/DSK078 Rev A and record below:

				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	By	Date
<b>Lathe Section</b>									
A	2.707	2.712							
B	4.946	4.966							
C	3.064	3.084							
D	0.718	0.738							
E	0.090	0.110							
F	2.934	2.954							
G	2.166	2.186							
H	3.890	3.910							
I	0.914	0.934							
J	0.022	0.042							
K	0.109	0.129							
L									
<b>HAAS Section</b>									
AA	2.985	3.005		2.997	2.998	2.995	2.997		
AB	0.440	0.460		0.440	0.441	0.440	0.440		
AC	0.125	0.160		0.140	0.137	0.135	0.135		
AD	0.040	0.060		0.042	0.041	0.041	0.041		
AE	0.188	0.193	DT8706	0.188	0.188	0.188	0.188		
AF	0.125	0.160		0.145	0.145	0.145	0.145		
AG	0.140	0.160		0.151	0.150	0.152	0.150		
AH	1.360	1.400		1.377	1.375	1.375	1.377		
AI	0.040	0.060		0.048	0.047	0.053	0.047		
AJ	1.190	1.230		1.219	1.215	1.215	1.215		
AK	0.010	0.020		0.010	0.010	0.010	0.010		
AL	0.053	0.073		0.053	0.063	0.063	0.063		
AM	0.240	0.260		0.240	0.240	0.240	0.240		
AN	2.518	2.538		2.528	2.528	2.528	2.528		
AO	84.39	90.39	DT8699						
AP	0.257	0.262	DT8683	0.257	0.257	0.257	0.257		
AQ	0.053	0.073		0.063	0.063	0.063	0.063		
AR									
AS									
<b>Accept/Reject</b>									

Measured by:	<i>me</i>
Date:	06/02/10

Audited by:	
Date:	

Rev	Date	Change	Revised by	Approved
A	02.12.13	New Issue	KJ/RF RE	<i>[Signature]</i>

**RELEASED**  
03.07.01

PORT AEROSPACE LTD		Work Order:	
Description: 02.750 Support		Part Number: D2893-1	
Inspection Drawing: D2893 Rev. A1		Page 1 of 1	

Inspect dimensions highlighted on inspection sheet drawing D2893 Rev A1/DSK078 Rev A and record below:

				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	15	16	17	18	By	Date
Lathe Section									
	2.707	2.712							
	4.946	4.966							
	3.064	3.084							
	0.718	0.738							
	0.090	0.110							
	2.934	2.954							
	2.166	2.186							
	3.890	3.910							
	0.914	0.934							
	0.022	0.042							
	0.109	0.129							
HAAS Section									
AA	2.985	3.005		2.998	2.998	2.999	2.998		
AB	0.440	0.460		0.453	0.450	0.455	0.456		
AC	0.125	0.160		0.131	0.133	0.135	0.136		
AD	0.040	0.060		0.047	0.049	0.051	0.050		
AE	0.188	0.193	DT8706	0.189	0.189	0.189	0.189		
AF	0.125	0.160		0.140	0.141	0.142	0.143		
AG	0.140	0.160		0.159	0.160	0.160	0.160		
AH	1.360	1.400		1.391	1.378	1.380	1.386		
AI	0.040	0.060		0.046	0.045	0.045	0.046		
AJ	1.190	1.230		1.221	1.214	1.217	1.217		
AK	0.010	0.020		0.015	0.015	0.015	0.015		
AL	0.053	0.073		0.063	0.063	0.063	0.063		
AM	0.240	0.260		0.250	0.250	0.250	0.250		
AN	2.518	2.538		2.528	2.528	2.528	2.528		
AO	84.39	90.39	DT8699	✓	✓	✓	✓		
AP	0.257	0.262	DT8683	✓	✓	✓	✓		
AQ	0.053	0.073		0.063	0.063	0.063	0.063		
AR									
AS									
Accept/Reject									

Measured by: J.G.
Date: 06/02/11

Audited by:
Date:

Rev	Date	Change	Revised by	Approved
	02.12.13	New Issue	KJ/RF	RF

RELEASED  
03.07.01



Customer:	SPACE LTD	Work Order:	
Part No:	2.750 Support	Part Name:	D2893-1
Revision:	g: D2893 Rev. A1		Page 1 of 1

Dimension highlighted on inspection sheet drawing D2893 Rev A1/DSK078 Rev A and record below:

			Recorded Actual Dimensions					
Min	Max	Go/No Go Gauge	1/9	2/10	3/11	4	By	Date
Lath Section								
2.701	2.712							
4.940	4.966							
3.005	3.034							
0.710	0.738							
0.090	0.110							
2.934	2.954							
2.166	2.186							
3.890	3.910							
0.914	0.934							
0.022	0.042							
0.109	0.129							
HAAS Section								
AA	2.985	3.005		2.999	2.998	2.999		
AB	0.440	0.460		0.459	0.460	0.460		
AC	0.125	0.160		0.131	0.135	0.135		
AD	0.040	0.060		0.052	0.049	0.050		
AE	0.188	0.193	DT8706	0.189	0.189	0.189		
AF	0.126	0.160		0.136	0.139	0.138		
AG	0.140	0.160		0.140	0.158	0.159		
AH	1.386	1.400		1.382	1.382	1.382		
AI	0.040	0.060		0.051	0.047	0.051		
AJ	1.190	1.230		1.218	1.217	1.218		
AK	0.010	0.020		0.015	0.015	0.015		
AL	0.063	0.073		0.063	0.063	0.063		
AM	0.240	0.260		0.250	0.250	0.250		
AN	2.518	2.538		2.528	2.528	2.528		
AO	84.39	90.39	DT8699	87.39	87.39	87.39		
AP	0.257	0.262	DT8683	0.258	0.258	0.258		
AQ	0.063	0.073		0.063	0.063	0.063		
Accept/Reject								

Measured by:	J. G.	Audited by:	
Date:	06/02/13	Date:	

Date	Change	Revised by	Approved
02.12.13	New Issue	KJ/R	RE

RELEASED  
13 07 13

## Chris Provencal

---

**From:** David Shepherd [davids@dartaero.com]  
**Sent:** February 15, 2006 3:59 AM  
**To:** Chris Provencal  
**Subject:** Re: D2893-1 NCR

This is an acceptable deviation.

David

----- Original Message -----

**From:** "Chris Provencal" <cprovencal@dartaero.com>  
**To:** <davids@dartaero.com>  
**Sent:** Monday, February 13, 2006 11:19 AM  
**Subject:** D2893-1 NCR

> David, for D2893-1 Crosstube Support. The 0.065" dimension in section B-B  
> of the dwg, the depth of the cut for the hose clamps, is 0.052" on two  
> parts. Is this acceptable?

>

> Sincerely,  
> Chris Provencal  
> DART Aerospace Ltd.  
> Email..cprovencal@dartaero.com  
> Phone...613-632-3336  
> Fax.....613-632-4443

>

>